

- line 24, change "is pulled out" to --extends--.
- Page 113, line 7, change "to the bottom of" to --beneath--;
- line 12, delete "adheres";
- line 13, change "to" to --contacts--;
- line 16, after "the" insert --finger surface--;
- line 21, change "43" to --41B--; and
- line 23, after "vessels" insert --, as shown in FIG. 43--.
- Page 114, line 22, change "iremitted" to --irradiated--.
- Page 115, line 6, change "incident" to --fall--; and
- line 14, change "iremitted" to --irraidated--.
- Page 118, line 4, change "621" to --622--; and
- line 25, change "622" to --623--.
- Page 119, line 9, change "631" to --630--; and
- line 23, change "4" to --304--.
- Page 120, line 1, change "at rest" to --moving--.

IN THE CLAIMS:

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1. (Amended) A polarized light communication device comprising [characterized in the provision of]:

[a] at least one transmitter [for] modulating [the] a plane of polarization of [the] laser light, and then emitting [the] a modulation result as a transmission signal; and

[a] at least one receiver [having a light receiving means which] selectively [receives] receiving light of a specific polarization state.

2. (Amended) A polarized light communication device according to claim 1, [characterized in that] wherein one of [either the] said transmitter [or the] and said receiver is disposed inside a strongly dispersing medium.

3. (Amended) A polarized light communication device according to claim 1, [characterized in that the] wherein one of said transmitter and [the] said receiver [are] is disposed in a strongly dispersing medium, and the other of said transmitter and [the] said receiver [are] is disposed outside [the] said strongly dispersing medium.

4. (Amended) A polarized light communication device according to claim 2 or 3, [characterized in that the] wherein said strongly dispersing medium is a living body.

5. (Amended) A polarized light communication device according to claim 2 or 3, [characterized in that the] wherein said strongly dispersing medium is a human body.

6. (Amended) A polarized light communication device according to claim 1, [characterized in that] comprising:

an internal transmitting/receiving device [consisting of the] comprising a first one of said at least one transmitter and [the] a first one of said at least one receiver [is] disposed inside [a] said strongly dispersing medium;

an external transmitting/receiving device comprising a second one of said at least one [consisting of the] transmitter and a second one of said at least one [the] receiver [is] disposed outside [the] said strongly dispersing medium; and

a controller controlling communication [is carried out] between [the] said internal transmitting/receiving device and [the] said external transmitting/receiving device.

7. (Amended) A polarized light communication device according to claim 1, [characterized in that] comprising:

an internal transmitting/receiving device [is] disposed in a strongly dispersing medium, [the] said internal transmitting/receiving device [consisting of the] comprising a first one of said at least one transmitter and a light quantity receiver [which has] said light quantity receiver comprising a received light

quantity detector [detecting means which outputs] outputting a signal in response to [the] a received light quantity;

an external transmitting/receiving device [is] disposed outside [the] said strongly dispersing medium, [the] said external transmitting/receiving device [consisting of the] comprising a first one of said at least one receiver and a light intensity transmitter [which modulates the] modulating an amount of light [emitted and emits it] and emitting said modulated light as a transmission signal; and

a controller controlling communication [is carried out] between [the] said internal transmitting/receiving device and [the] said external transmitting/receiving device.

8. (Amended) A polarized light communication device according to claim 1, [characterized in that] comprising:

an internal transmitting/receiving device [is] disposed in[side] a strongly dispersing medium, [the] said internal transmitting/receiving device [consisting of the] comprising a first one of said at least one receiver and a light intensity transmitter [which modulates the] modulating an amount of light [emitted and emits it] and emitting said modulated light as a transmission signal;

an external transmitting/receiving device [is] disposed in [the] said strongly dispersing medium, [the] said external transmitting/receiving device [consisting of the] comprising a first one of said at least one transmitter and a light quantity receiver [which has] said light quantity receiver comprising a received light quantity detector [detecting means which outputs] outputting a signal in response to [the] a received light quantity; and

a controller controlling communication [is carried out] between [the] said internal transmitting/receiving device and [the] said external transmitting/receiving device.

9. (Twice Amended) A polarized light communication device according to any one of claims 1, 2, 3, 6, 7 and 8, [characterized in that the] wherein said at least one transmitter [is provided with] comprises:

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a light emitter [emitting means which generates] comprising a plurality of planar emission laser elements having different polarized light directions and formed on the same semiconductor substrate; and

a [driving means for] driver selectively supplying current to [these] said plurality of planar emission laser elements.

10. (Amended) A polarized light communication device according to claims 7 or 8, [wherein the light source for the light intensity transmitter is] comprising a planar emission laser as a light source for said light intensity transmitter.

11. (Amended) A polarized light communication[s] device according to claim 9, [characterized in that in the transmitter] wherein:

[the] said driver [driving means drives only a portion of the] includes a switch supplying current to only certain of said planar emission lasers [in the light emitting means] during [the] a regular operation of [the] said transmitter, and, when [the] said certain planar emission lasers [driven by the driving means] are no longer operational, [in a specific states, the driving means drives] said switch supplies current to reserve planar emission lasers [in the light emitting means] which were not used during regular operation.

12. (Amended) A array planar emission laser, [characterized in that] comprising a plurality of planar emission laser elements having different polarized light directions [are] and formed on the same semiconductor substrate.

13. (Amended) A transmitter, [characterized in the provision of] comprising:

a light emitter [emitting means in which] comprising a plurality of planar emission laser elements having different polarized light directions [are] and formed on the same semiconductor substrate; and

a driver [driving means for] selectively supplying current to [the] said plurality of planar emission laser elements.

14. (Amended) A transmitter according to claim 13, [characterized in that the] wherein said driver [driving means] comprises a switch selectively [supplies]

supplying current to [the] said planar emission lasers polarized in a specific direction in association with a transmission signal.

15. (Amended) A polarized light communication[s] device for physiological use, [characterized in the provision of] comprising:

a transmitter embedded in [the] a body, the transmitter provided inside the body and] , said transmitter modulating [the] a polarization plane of [the] a laser light and emitting [it] modulated light as a transmission signal; and

a receiver [which may be attached to the body, the receiver] provided outside [the] said body and [equipped with] comprising a light receiver [receiving means for] selectively receiving light of a specific polarization state, a display [for] providing a display corresponding to [the] a received signal of [the] said light receiver [receiving means], and an attaching member [means for] fixing [the] said light receiver [receiving means] to [the] said body [so that the light receiving means receives the light emitted from the transmitter embedded in the body].

16. (Amended) A polarized light communication device for physiological use according to claim 15, [characterized in that] comprising:

a second light receiver [receiving means is] provided inside [the] said embedded transmitter [and] selectively [receives] receiving light in a specific polarization state; and

a second transmitter [is] provided inside [the] said receiver attached to [the] said body [and modulates the] , said second transmitter modulating a polarization plane of [the] a laser light and [emits the result] emitting modulating light as a transmission signal to the second light receiver [receiving means];

wherein full duplex communication is carried out between [the] said embedded transmitter and [the] said receiver attached to the body.

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18. (Amended) A pulse wave detecting device for detecting [the] a pulse wave based on [the] a signal output from a receiver [the signal receiving means], comprising [characterized in the provision of]:

a [transmitting means for] transmitter emitting a [specific] wave;

[a receiving means for] said receiver receiving [a] said wave emitted by said transmitter [the transmitting means], and outputting said received wave [it] as a signal;

a transmission path measuring means for measuring the transmission path of [the] a wave [and the] passing through a cross-sectional area of an arterial vessel in [the] a body, based on [the state of reception of the receiving means] an amplitude of a wave received by said receiver;

a notifying means for notifying [the] a user of the results of measurements by [the] said transmission path measuring means;

a position changing means for changing the relative positional relationship of said receiver and transmitter [the receiving means and the transmitting means] to a [direction so that the receiving state improves, based on the results of measurements by the transmission path measuring means] positional relationship where said wave amplitude is maximized.

19. (Amended) A pulse wave detecting device comprising [characterized in the provision of]:

a [transmitting means for] transmitter emitting a [specific] wave;

a [receiving means for] receiver receiving [a] said wave emitted by [the transmitting means] and outputting said received wave [it] as a signal;

a transmission path measuring means for measuring the positional relationship between [the] a transmission path of [the] a transmitted wave and [the] a cross-section of [the] an arterial vessel based on [the state of the signal] an amplitude of said wave received by said receiver [the receiving means]; and

a position changing means for changing the relative positional relationship of said receiver and transmitter [the receiving means and the transmitting means] to a [direction so that the receiving state improves, based

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on the results of measurements by the transmission path measuring means] positional relationship when said wave amplitude is maximized;

[wherein, the] and a pulse wave detector [detecting device detects] detecting the pulse wave [based on] in response to the signal output from the receiving means.

20. (Amended) A pulse wave detecting device according to claim 18 or 19, [characterized in that] comprising:

[the pulse wave detecting device is provided with] a body motion component detecting device [means for] detecting body motion components in the body where the pulse wave is being measured; and

[the pulse wave is detected after] means for removing the body motion component detected by the body motion component detecting device [means] from the [pulse] wave received by the [receiving means] receiver.

21. (Thrice Amended) A pulse wave detecting device according to claim 18 or 19, [characterized in that the] wherein said transmitted wave is light.

22. (Thrice Amended) A pulse wave detecting device according to claim 18 or 19, [characterized in that the] wherein said transmitted wave is laser light.

23. (Thrice Amended) A pulse wave detecting device according to claim 18 or 19, [characterized in that the] wherein said transmitted wave is polarized laser light.

24. (Twice Amended) A pulse wave detecting [means] device according to claim 18 or 19, [characterized in that the pulse wave detecting device is provided with] further comprising a ring-shaped attaching member [that attached to the] attaching to a body in which detection is being performed, and [the transmitting means and the receiving means attach to the] said transmitter and receiver attaching to said attaching member.

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25. (Amended) A pulse wave detecting device according to claim 24, [characterized in that the] including means for wrapping said attaching member [wraps] around [the] an arm, with the position of said transmitter and receiver [the transmitting means and the receiving means] and the direction of emission of [the] said transmitted wave being set so that the transmission path passes between [the radius] radial and ulna bones in a cross section of [the] said arm.

26. (Amended) A reflected light detector [characterized in the provision of] comprising:

a light [emitting means for] emitter emitting light [(electromagnetic wave)] onto a dispersing medium;

a first [polarizing means for] polarizer polarizing light [generated] emitted by [the] said light [emitting means] emitter;

a second [polarizing means upon which the polarized] polarizer receiving light [that is] reflected by [the] said dispersing medium [incidents], [the] said second polarizer [polarizing means permitting passage of] passing light components polarized in [a specific] one direction; and

a light receiver receiving [means upon which] light [which has] passed through [the] said second light [polarizing means incidents] polarizer;

[wherein, the] said light [receiving means consists of] receiver comprising a light resonator [resonating means for] resonating [the incidented] received light[,] and an outputting means for outputting a signal proportional to the light resonated by [the] said light [resonating means] resonator.

27. (Amended) A reflected light detector according to claim 26 [characterized in that] wherein the direction of polarization of the first and second [polarizing means] polarizers are the same.

28. (Amended) A reflected light detector according to claim 26 [characterized in that] wherein the direction of polarization of the first and second [polarizing means] polarizers are perpendicular or reversed with respect to one another.

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29. (Amended) A reflected light detector according to claim 26 [characterized in the provision of] further comprising a filter [means for] absorbing light having a [shorter than specified] wavelength [out of the light incidenting on the receiving means] below a particular value.

30. (Amended) A reflected light detector [for] according to claim 26 wherein said dispersing medium is a strongly dispersing medium [according to claim 26 characterized in the provision of] , and further comprising:

a light [control means for] controller intermittently turning on and off [the] said light [which is] emitted [on the] onto said dispersing medium; and

a first removing means for removing [the] a signal output from [the] said outputting means when [the] said light is off[,] from [the] a signal output from [the] said outputting means when [the] said light is on.

31. (Amended) A reflected light detector according to claim 26, [characterized in that] comprising:

at least two [sets of the] said second [polarizing means] polarizers and [the receiving means are provided] two said receivers; and wherein

the direction of polarization of [each of the] one of said second [polarizing means are set so as to be in] polarizers is the same direction as the direction of polarization of [the] said first [polarizing means] polarizer and the direction of polarization of another of said second polarizers is perpendicular to or opposite the direction of polarization of [the first polarizing means, respectively] said first polarizer.

32. (Amended) A reflected light [detecting means] detector according to claim 26, [characterized in that/the] wherein said light [emitting means] emitter and [the] said first [polarizing means can] polarizer emit light polarized in one of the same direction as the direction of polarization of [the] said second [polarizing means] polarizer, and light perpendicular to or opposite the direction of polarization of [the] said second [polarizing means, respectively] polarizer.

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33. (Amended) A reflected light [detecting means] detector according to claim 32, [characterized in the provision of] further comprising:

a driving [means for] circuit driving [the] said light [emitting means] emitter so that light polarized in [the] said same direction as the direction of polarization of [the] said second [polarizing means] polarizer, and light polarized in a direction perpendicular or opposite the direction of polarization of the second [polarizing means] polarizer are [complementarily] alternately emitted; and

an extracting means for extracting [the] an output signal from [the] said outputting means [for the case where the] when said driving circuit drives [the] said light [emitting means] emitter to emit light polarized in the same direction as the direction of polarization of [the] said second [polarizing means] polarizer, and [for the case where the] when said driving circuit drives [the] said light [emitting means] emitter to emit light polarized in a direction perpendicular to or opposite the direction of polarization of [the] said second [polarizing means] polarizer.

34. (Amended) A reflected light detector according to claim 32, [characterized in that] wherein:

[the] said light [emitting means is] emitter comprises a semiconductor laser [consisting of] comprising light reflecting layers and an active layer inserted therebetween; and

[the first polarizing means polarized light from the] said semiconductor laser [in two directions by employing] comprises a circularly shaped light reflecting layer and means for modulating [the] inrush current directed to [the] said active layer such that said first polarizer polarizes light from said semiconductor laser in two directions.

35. (Amended) A reflected light detector according to claim 32[, characterized in that] wherein:

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[the] said light [emitting means is] emitter comprises a semiconductor laser [consisting of] comprising light reflecting layers and an active layer inserted therebetween; and

[the first polarizing means polarizes light emitted by the] said semiconductor laser [by employing] comprising a rectangularly shaped light reflecting layer, and [polarizing light from the dispersing medium in two directions by disposing the directions of the] wherein short legs of [the] said light reflecting layer [so that they] are 90° with respect to one another such that said first polarizer polarizes light in two directions.

36. (Amended) A reflected light detector according to claim 26, [characterized in that] wherein said light emitter comprises a semiconductor laser [consisting of] comprising light reflecting layers and an active layer inserted therebetween [is employed as the light emitting means].

37. (Amended) A reflected light detector according to claim 26, [characterized in that] wherein:

said light receiver comprises a photo diode [consisting of] comprising light reflecting layers and a depletion layer inserted therebetween [is employed for the light receiving means];

[the] said light [resonating means is formed of] resonator comprises two light reflecting layers; and

[the] said outputting means generates a current in response to [the] an amount of light absorbed by [the] said depletion layer.

38. (Amended) A reflected light detector according to claim 26, [characterized in the that] wherein:

said light receiver comprises a semiconductor laser [consisting of] comprising light reflecting layers and an active layer inserted therebetween [is employed as the light emitting means];

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said light receiver comprises a photo diode [consisting of] comprising light reflecting layers and a depletion layer inserted therebetween [is employed as the light receiving means];

said [the] light [resonating means is formed of said] resonator comprises two light reflecting layers; and

said [the] outputting means generates a current in response to [the] an amount of light absorbed by [the] said depletion layer.

39. (Amended) A reflected light detector according to claim 37, [characterized in that] wherein:

said [the] light [emitting means] emitter and [the] said light [receiving means] receiver are formed [to the same] on one semiconductor substrate[, and are employed in a unitary or separate manner].

40. (Amended) A [pulse wave detecting device employed in the] reflected light detector according to claim 26, [characterized in that] for use in detecting a pulse wave of a body, wherein:

said [the] light [emitting means] emitter emits light on a body;

said [the] light [receiving means is incidented upon by] receiver receives light reflected by [the] said body; and

said [the] outputting means detects [the] said pulse wave in [the] said body.

41. (Amended) A [pulse wave detecting device] reflected light detector according to claim 40, [characterized in the provision of] comprising:

a body motion detector detecting [means for detection] body motion; and

a [second] removing means for removing [the] said body motion component detected by [the] said body motion [detecting means] detector from [the] a signal output by [the] said outputting means[, and outputting the result as the] to produce said pulse wave.

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42. (Amended) A [pulse wave detecting device] reflected light detector according to claim 40 [characterized in the provision of] comprising:

a body motion [detecting means for] detector detecting body motion;

a determining means for determining whether or not [the] said body is at rest based on [the] said body motion component detected by [the] said body motion [detecting means] detector; and

a [third] removing means for outputting [the] said signal output by [the] said outputting means as [the] said pulse wave without modification when [the] said determining means determines that [the] said body is at rest, and removing [the] said body motion component detected by [the] said body motion detecting means from [the] said signal output by [the] said outputting means when [the] said determining means determines that [the] said body is not at rest, and outputting [this] a result as the pulse wave.

43. (Amended) A pulse wave detecting device [characterized in the provision of] comprising:

a [transmitting means for] transmitter emitting a [specific] wave;

a [receiving means for] receiver receiving [the] said wave emitted by [the transmitting means] said transmitter and outputting [it] said received wave as a signal;

a transmission path measuring means for measuring [the] a positional relationship between [the] a transmission path of [the] a transmitted wave and [the] a cross-section of an arterial vessel in [the] a body;

a notifying means for notifying [the] a user of [the measured] measurement results from [the] said transmission path measuring means; and

a body motion component detecting means for detecting [the] a body motion component in [the] said body in which [the] said pulse wave is measured; and

[wherein the] a pulse wave detecting means [detects the] for detecting said pulse wave after removing [the] said body motion component detected by

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the body motion component detecting means from [the] said wave received by [the receiving means] said receiver.

44. (Amended) A pulse wave detecting device according to claim 43, [characterized in that the] wherein said transmitted wave is light.

45. (Amended) A pulse wave detecting device according to claim 43, [characterized in that the] wherein said transmitted wave is laser light.

46. (Amended) A pulse wave detecting device according to claim 43, [characterized in that the] wherein said transmitted wave is polarized laser light.

47. (Amended) A pulse wave detecting device [characterized in the provision of] comprising:

a [transmitting means for] transmitter emitting a polarized laser light;

a [receiving means for] receiver receiving [the] said laser light emitted by [the transmitting means] said transmitter and outputting [it] said received light as a signal;

a transmission path measuring means for measuring [the] a positional relationship between [the] a transmission path of [the] a laser light [and the] passing through a cross-section of an arterial vessel in [the] a body, based on [the reception state of the receiving means] an amplitude of light received by said receiver; and

a notifying means for notifying [the] a user of [the measured] measurement results from [the] said transmission path measuring means; and

[wherein, the] a pulse wave detecting [device detects the] means for detecting said pulse wave based on [the] a signal output from [the receiving means] said receiver.

48. (Amended) A pulse wave detecting device [characterized in the provision of] comprising:

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a [transmitting means for] transmitter emitting a [specific] wave;

a [receiving means for] receiver receiving [the] said wave emitted by [the transmitting means] said transmitter and outputting [it] said received wave as a signal;

a transmission path measuring means for measuring [the] a positional relationship between [the] a transmission path of [the] said wave [and the] passing through a cross-section of an arterial vessel in [the] a body, based on [the reception state of the receiving means] an amplitude of light received by said receiver;

a notifying means for notifying [the] a user of [the measured] measurement results from [the] said transmission path measuring means; and

a ring-shaped attaching member for attaching to [the] said body in which [is the target of detection] said pulse wave is detected;

and wherein [the transmitting means and the receiving means] said transmitter and receiver are attached to [the] said attaching member, and [detect the] said pulse wave is detected based on [the] said signal output [from the receiving means] by said receiver.

49. (Amended) A pulse wave detecting device according to claim 48, [characterized in that the] comprising means for wrapping said attaching member [wraps] around [the] an arm, [with the position of the transmitting means and the receiving means] and means for positioning said transmitter and receiver and the direction of emission of [the] said wave [being set] so that the transmission path passes between [the radius] radial and ulna bones in a cross section of [the] said arm.